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EXAMINER
DOAN, DUC T

ART UNIT	PAPER NUMBER
2185	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/742,128	PANCHBUDHE ET AL.
	Examiner	Art Unit	
	DUC T. DOAN	2185	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 June 2009</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>27,29-42,44-46,48-50,52-54 and 62-64</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>27, 29-42, 44-46, 48-50, 52-54 and 62-64</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 1-26, 28, 43, 47, 51 and 55-61 have been canceled.

Claims 27, 29-42, 44-46, 48-50, 52-54 and 62-64 remain pending.

Claims 27, 29-42, 44-46, 48-50, 52-54 and 62-64 are rejected.

Claims Objections

Claims 38,40,54, 63 are objected to because:

Claim 38 line 2, "the set of location description" lack antecedent basis.
And it's not clear which local description is referred to.

Claim 40 at line 2, "the at least one location description" lacks antecedent
basis; at line 4, "the operation" lacks antecedent basis.

Claim 54 line 4, "the computer-readable medium" lacks antecedent basis.

Claim 63 at line 3, "the operation" lacks antecedent basis; at lines 3-4, "the
given location" lacks antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for
all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically
disclosed or described as set forth in section 102 of this title, if the
differences between the subject matter sought to be patented and the
prior art are such that the subject matter as a whole would have been
obvious at the time the invention was made to a person having ordinary

skill in the art to which said subject matter pertains. Patentability shall not

be negatived by the manner in which the invention was made.

Claims 27, 29-42, 44-46, 48-50, 52-54 and 62-64 are rejected under 35

U.S.C. 103(a) as being unpatentable over Lee et al. (US Pub 2003/0149683) in

view of Nakajima (US Pat. 5659747).

As in claim 27, Lee discloses a method comprising: in response to a

request to perform a first operation on volume wherein the volume comprises a

plurality of physical locations (Fig 1, par. 15, storage device 140 store data in

volume, par. 43, data stored in 140 comprises physical blocks such as 512 bytes;

logical block can be one or more physical blocks and vice versa), at least one of

the physical locations having data stored thereon (par. 44-45, operations on

stored data includes reading/writing physical blocks); accessing a volume sieve

wherein the volume sieve comprises:

a property (par 45. mapping structures for operations, such as backup,

par. 84),

operation is performed on a set of physical locations of the volume,

wherein the set of physical locations is identified by a set of location descriptions

(par. 79, set of extents, i.e. claim's set of physical location, is represented by set

of bitmaps of the extent, i.e claim's set of location descriptions);

the set of location descriptions wherein

each location description of the set of location descriptions identifies one

or more of the physical locations of the volume (par. 79, bitmap of each extent

identifies physical locations in the extent); and the set of location descriptions

identifies all the physical locations within the volume upon which the operations

can be performed (par. 79, bitmap of set of extents identifies physical locations

in the volume); detecting whether a given physical location is identified by the set

of location descriptions (par. 79, accessing data at a given physical location by

lookup bitmaps); performing the one or more operations upon the given physical

location if the given physical location is identified by the set of location

descriptions (par. 80, change of physical block is identified; to apply appropriated

operation for physical blocks, par. 84).

Lee does not expressly disclose the claim's information relates to

operations and performing operations. However, Nakajima discloses the property

includes information identifying one or more operations (Fig 4c, log/list for

instructions to be processed); the one or more operations are performed in

response to the request to perform the first operation (col. 1 lines 25-55, storing

several commands and associating information in a log such that series of

command are processed after a first command). It would have been obvious to

one of ordinary skill in the art at the time of invention to include storing

commands as suggested by Nakajima in Lee's system to process several

commands quickly and efficiently and thereby further improve the overall

system's performance (col. 5 lines 65 to col. 6 line 13).

As in claim 29, Lee further discloses the set of location descriptions is

specified by an application program (pars. 84, 79 application program such as

backup for logical objects which are designated /mapped to extents).

As in claim 30, Lee further discloses wherein the first operation is replication (par. 84, backup operation).

As in claim 31, Lee further discloses obtaining a set of entities (par. 103, identifying objects and locations), wherein the plurality of physical locations comprises a plurality of subsets of physical locations (par. 79, physical locations comprise several extents, each extent comprises several physical blocks, i.e claim's subsets) and an entity in the set of entities has permission to perform the operation on respective data in at least one of the plurality of subsets of physical locations (par. 103, par. 87, identifying objects filename and locations that are permitted/listed in a dictionary);

As in claim 32, Lee further discloses wherein the set location descriptions and the corresponding property are designated by a requester (pars. 84, 79 application program such as backup for logical objects which are designated /mapped to extents; par 103, dictionary for files/objects designated for operation).

As in claim 33, Lee further discloses obtaining a designation of the first operation (pars. 84, 79 application program such as backup for logical objects which are designated /mapped to extents; par 103, dictionary for files/objects designated for operation).

As in claim 34, Lee further discloses wherein the requester manages data in the volume (pars 8 and 15, Fig 1, operations of applications running in 310 comprises add delete modifying etc data of 140 volumes).

As in claim 35, Lee further discloses wherein the requester performs a management function of a set of management functions for the volume (pars 8

and 15, Fig 1, operations/set of operations of applications running in 310

comprises add delete modifying etc data/volume 140).

As in claim 36, Lee further discloses wherein the requester identifies a

respective physical location in the volume corresponding to each location

described in set of location descriptions (pars. 84, 79 application program such

as backup for logical objects which are designated /mapped to extents; par 103,

dictionary for files/objects designated for operation).

As in claim 37, Lee further discloses wherein each location described in

the at least one location description is specified by a beginning location and a

number of contiguous locations starting at the beginning location (par. 79,

extents and offset).

As in claim 38, Lee further discloses wherein the set of location

description is designated by a set of indicators, wherein the set of indicators

comprises an indicator for each respective location of the plurality of locations

(par. 79, bitmap each bit represents/indicates a data block), and each indicator of

the set of indicators indicates whether the respective location for the indicator is

described in the at least one location description (par. 79, bitmap each bit

represents/ indicates a data block for the corresponding operation).

As in claim 39, Lee further discloses obtaining a set of locations (par. 79,

locations for objects of operations). Lee does not expressly disclose performing

of second operation on the given physical location. However, Nakajima further

discloses and performing a second operation on the set of locations after the

operation is performed on the given physical location (col. 1 lines 25-55, storing

several commands and associating information in a log such that series of command are processed after a first command). It would have been obvious to one of ordinary skill in the art at the time of invention to adopt the teaching of Nakajima in Lee's system for the same reasons stated above.

As in claim 40, Lee further discloses wherein the at least one location description and the property are designated by the requester; and the operation and the second operation are designated by the requester (par. 103, several operations on rows/set of locations by applications running in 310 for data objects stored in 140).

As in claim 41, Lee further discloses wherein each type of operation in the volume sieve is performed on the given location if the volume sieve is specified (pars 79-80, 84, myriad applications/operations including backup can be realized using mapping blocks locations of data stored in volumes, see par. 15).

As in claim 42, Lee further discloses a system comprising: means for storing a sieve associated with an operation (Fig 3, pars. 44-46, metadata/sieve describes objects, files, mapping locations etc..for operation of the application); and means for performing the following in response to a request to perform a first operation on a volume wherein the volume comprises a plurality of physical locations (Fig 1, par. 15, storage device 140 store data in volume, par. 43, data stored in 140 comprises physical blocks such as 512 bytes; logical block can be one or more physical blocks and vice versa), wherein at least one of the physical locations having data stored thereon (par. 44-45, operations on stored data

includes reading/writing physical blocks), and wherein the means for performing

the following comprise:

means for accessing a volume sieve wherein the volume sieve comprises:

a property (par 45. mapping structures for operations, such as backup,

par. 84),

0operation is performed on a set of physical locations of the volume

wherein the set of physical locations is identified by a set of location descriptions

(par. 79, backup for certain physical blocks identified by bitmap, each represent

a physical block, an extent is a set of physical blocks); and

the set of location descriptions wherein each location description of the

set of location descriptions identifies one or more of the physical locations of the

volume (par. 79, bitmap of each extent identifies physical locations in the extent)

and the set of location descriptions identifies all the physical locations within the

volume upon which the operations can be performed (pars. 79, 15 bitmap of set

of extents identifies physical locations in the volume); means for detecting

whether a given physical location is identified by the set of location descriptions

(par. 79, accessing data at a given physical location by lookup bitmaps); and

means for performing the one or more operations upon the given physical

location if the given physical location is identified by the set of location

descriptions (par. 80, change of physical block is identified; to apply appropriated

operation for physical blocks, par. 84).

Lee does not expressly disclose the claim's information relates to

operations and performing operations. However, Nakajima discloses the property

includes information identifying one or more operations (Fig 4c, log/list for instructions to be processed); the one or more operations are performed in response to the request to perform the first operation (col. 1 lines 25-55, storing several commands and associating information in a log such that series of command are processed after a first command). It would have been obvious to one of ordinary skill in the art at the time of invention to include storing commands as suggested by Nakajima in Lee's system to process several commands quickly and efficiently and thereby further improve the overall system's performance (col. 5 lines 65 to col. 6 line 13).

As in claim 44, Lee further discloses wherein the set location descriptions and the corresponding property are designated by a requester (pars. 84, 79 application program such as backup for logical objects which are designated /mapped to extents; par 103, dictionary for files/objects designated for operation).

As in claim 45, Lee further discloses means obtaining a designation of the first operation (pars. 84, 79 application program such as backup for logical objects which are designated /mapped to extents; par 103, dictionary for files/objects designated for operation).

As in claim 46, Lee discloses a system comprising: one or more storage devices, wherein the one or more storage devices comprise a plurality of physical locations in a volume (Fig 1 storage 140 stores data/volumes of 322 324), wherein at least one of the physical locations has data stored thereon (par. 44-45, operations on stored data includes reading/writing physical blocks); and

a module configured to perform the following in response to a request to perform a first operation on the volume (Fig 1 a request of an application for an operation regarding data in storage system 140; data of volume and/or file system 322 324 comprises extents and/or blocks and/or bytes and/or bit etc.. as shown in Fig 5a), wherein the module configured to perform the following comprises: a module configured to access a volume sieve wherein the volume sieve comprises:

a property (par 45. mapping structures for operations, such as backup, par. 84),

operation is performed on a set of physical locations of the volume wherein the set of physical locations is identified by a set of location descriptions (par. 79, backup for certain physical blocks identified by bitmap, each represent a physical block, an extent is a set of physical blocks);

and the set of location descriptions wherein each location description of the set of location descriptions identifies one or more of the physical locations of the volume (par. 79, bitmap of each extent identifies physical locations in the extent), and

the set of location descriptions identifies all the physical locations within the volume upon which the operations can be performed (pars. 79, 15 bitmap of set of extents identifies physical locations in the volume); a module configured to detect whether a given physical location is identified by the set of location descriptions (par. 79, accessing data at a given physical location by lookup bitmaps); and a module configured to perform the one or more operations upon

the given physical location if the given physical location is identified by the set of

location descriptions (par. 80, change of physical block is identified; to apply

appropriated operation for physical blocks, par. 84).

  Lee does not expressly disclose the claim's information relates to

operations and performing operations. However, Nakajima discloses the property

includes information identifying one or more operations (Fig 4c, log/list for

instructions to be processed); the one or more operations are performed in

response to the request to perform the first operation (col. 1 lines 25-55, storing

several commands and associating information in a log such that series of

command are processed after a first command). It would have been obvious to

one of ordinary skill in the art at the time of invention to include storing

commands as suggested by Nakajima in Lee's system to process several

commands quickly and efficiently and thereby further improve the overall

system's performance (col. 5 lines 65 to col. 6 line 13).

  As in claim 48, Lee further discloses wherein the set location descriptions

and the corresponding property are designated by a requester (pars. 84, 79

application program such as backup for logical objects which are designated

/mapped to extents; par 103, dictionary for files/objects designated for operation).

  As in claim 49, Lee further discloses obtaining a designation of the first

operation (pars. 84, 79 application program such as backup for logical objects

which are designated /mapped to extents; par 103, dictionary for files/objects

designated for operation).

As in claim 50, Lee discloses a computer-readable storage medium
comprising (page 19 claim 28): instructions configured to perform the following in
response to a request to perform an operation on a volume, wherein the volume
comprises a plurality of physical locations (Fig 1, par. 15, storage device 140
store data in volume, par. 43, data stored in 140 comprises physical blocks such
as 512 bytes; logical block can be one or more physical blocks and vice versa),
wherein at least one of the physical locations having data stored thereon (par.
44-45, operations on stored data includes reading/writing physical blocks);
wherein the instructions configured to perform the following comprise:
instructions configured to access a volume sieve wherein the volume sieve
comprises:

a property (par 45. mapping structures for operations, such as backup,
par. 84),

operation is performed on a set of physical locations of the volume
wherein the set of physical locations is identified by a set of location descriptions
(par. 79, backup for certain physical blocks identified by bitmap, each represent
a physical block, an extent is a set of physical blocks); and

the set of location descriptions wherein each location description of the set
of location descriptions identifies one or more of the physical locations of the
volume (par. 79, bitmap of each extent identifies physical locations in the extent)
and the set of location descriptions identifies all the physical locations within the
volume upon which the operations can be performed (par. 79, bitmap of set of
extents identifies physical locations in the volume); instructions configured to

detect whether a given physical location is identified by the set of location
descriptions (par. 79, accessing data at a given physical location by lookup
bitmaps); and instructions configured to perform the one or more operations
upon the given physical location if the given physical location is identified by the
set of location descriptions (par. 80, change of physical block is identified; to
apply appropriated operation for physical blocks, par. 84);

  Lee does not expressly disclose the claim's information relates to
operations and performing operations. However, Nakajima discloses the property
includes information identifying one or more operations (Fig 4c, log/list for
instructions to be processed); the one or more operations are performed in
response to the request to perform the first operation (col. 1 lines 25-55, storing
several commands and associating information in a log such that series of
command are processed after a first command). It would have been obvious to
one of ordinary skill in the art at the time of invention to include storing
commands as suggested by Nakajima in Lee's system to process several
commands quickly and efficiently and thereby further improve the overall
system's performance (col. 5 lines 65 to col. 6 line 13).

  As in claim 52, Lee further discloses wherein the set location descriptions
and the corresponding property are designated by a requester (pars. 84, 79
application program such as backup for logical objects which are designated
/mapped to extents; par 103, dictionary for files/objects designated for operation).

  As in claim 53, instructions configured to obtain a designation of the first
operation (pars. 84, 79 application program such as backup for logical objects

which are designated /mapped to extents; par 103, dictionary for files/objects designated for operation).

As in claim 54, Lee further discloses a computer system comprising: a processor (Fig 1 110); and the computer-readable storage medium of claim 50 (Fig 1 140 storage), wherein the computer-readable medium is coupled to the processor (Fig 1 140 storage).

As in claim 62, Lee further discloses wherein the performing the operation further comprises: providing a function name to a requestor, wherein the requestor generated the request (par 11, providing change function API).

As in claim 63, Lee further discloses wherein the property also comprises information specifying a characteristic of data stored in the plurality of physical locations, wherein the operation is only performed on the given location if data stored in the given location has the characteristic (par. 79, operation performed for changed physical data blocks).

As in claim 64, Lee further discloses wherein the property comprises information identifying a plurality of operations (par. 8, identifying operations such as add delete modifying etc).

Response to Arguments

Applicant's arguments in response to the last office action has been fully considered but they are mooted in view of new ground(s) of rejection necessitated by the Applicant's amendments to the claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this office action.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 36 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

When responding to the office action, Applicant is advised to provide the examiner with the paragraph numbers, and/or line numbers and page numbers in the application to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on 571-272-4098. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

/Sanjiv Shah/

Supervisory Patent Examiner, Art Unit 2185